

SEQUENCE LISTING

<110> Nakamura, Yusuke
 Katagiri, Toyomasa
 Nakatsuru, Shuichi

<120> Method of Diagnosing Breast Cancer

<130> 082368-007500US

<140> US 10/573,297
 <141> 2006-03-22

<150> US 60/505,571
 <151> 2003-09-24

<150> WO PCT/JP04/14438
 <151> 2004-09-24

<160> 52

<170> FastSEQ for Windows Version 4.0

<210> 1
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR EST MSTP020 (MST020)
 qk10f03.x1 NCI_CGAP_Kid3 clone IMAGE:1868573 3',
 BRC No. 147 forward primer

<400> 1
 ctgttctggc ttcgttatgt tct 23

<210> 2
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR EST MSTP020 (MST020)
 qk10f03.x1 NCI_CGAP_Kid3 clone IMAGE:1868573 3',
 BRC No. 147 reverse primer

<400> 2
 agaaaatacg gtcctcttgc tgc 23

<210> 3
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR adaptor-related protein
 complex 1, sigma 2 subunit (AP1S2), zq66c06.s1 Stratagene
 neuroepithelium (#937231) clone IMAGE:6436570 3' BRC No. 398
 forward primer

<400> 3
 cactgtaatg cacgacattt ga 22

<210> 4
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR adaptor-related protein
 complex 1, sigma 2 subunit (AP1S2), zq66c06.s1 Stratagene
 neuroepithelium (#937231) clone IMAGE:6436570 3' BRC No. 398
 reverse primer

<400> 4
 gttacagctt agcacaaggc atc 23

<210> 5
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR hypothetical protein
 LOC253782, zp06c06.s1 Stratagene ovarian cancer (#937219)
 BRC No. 161 forward primer

<400> 5
 acctctgagt ttgatttccc aa 22

<210> 6
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR hypothetical protein
 LOC253782, zp06c06.s1 Stratagene ovarian cancer (#937219)
 BRC No. 161 reverse primer

<400> 6
 cgaggcttgt aacaatctac tgg 23

<210> 7
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR EST zj54b05.s1
 Soares_fetal_liver_spleen 1NFLS_S1 clone IMAGE:454065 3'
 BRC No. 135 forward primer

<400> 7
 gaaactgtac ggggggttaa gag 23

<210> 8
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR EST zj54b05.s1
 Soares_fetal_liver_spleen 1NFLS_S1 clone IMAGE:454065 3'
 BRC No. 135 reverse primer

<400> 8
 catcaatgtg gtgagtgaca tct 23

<210> 9
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR dachshund (Drosophila)
 homolog (DACH, DACH1), FLJ10138, ym5310.s1 Soares infant
 brain 1NIB clone IMAGE:52021 3' BRC No. 395 forward primer

<400> 9
 aagcccttgg aacagaacat act 23

<210> 10
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR dachshund (Drosophila)
 homolog (DACH, DACH1), FLJ10138, ym5310.s1 Soares infant
 brain 1NIB clone IMAGE:52021 3' BRC No. 395 reverse primer

<400> 10
 cagtaaacgt ggttctcaca ttg 23

<210> 11
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR internal control
 glyceraldehyde-3-phosphate dehydrogenase (GAPD, GAPDH, G3PD),
 MGC88685, aging-associated gene 9 protein forward primer

<400> 11
 cgaccacttt gtcaagctca 20

<210> 12
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR internal control
 glyceraldehyde-3-phosphate dehydrogenase (GAPD, GAPDH, G3PD),
 MGC88685, aging-associated gene 9 protein forward primer

<400> 12
 gggttgagcac aggtacttt att 23

<210> 13
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR T-LAK cell-originated protein kinase (TOPK), spermatogenesis-related protein kinase (SPK), PDZ binding kinase (PBK), Nori-3, FLJ14385, A7870, BRC No. 456 forward primer, A7870 specific probe

<400> 13
 agaccctaata gatcgctcctt ctg 23

<210> 14
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR T-LAK cell-originated protein kinase (TOPK), spermatogenesis-related protein kinase (SPK), PDZ binding kinase (PBK), Nori-3, FLJ14385, A7870, BRC No. 456 reverse primer, A7870 specific probe

<400> 14
 gtgttttaag tcagcatgag cag 23

<210> 15
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic scrambled control (SC) double-stranded oligonucleotide

<400> 15
 tccccgcgcgc tttgtaggat tcgttcaaga gacgaatcct acaaagcgcg c 51

<210> 16
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic scrambled control (SC) double-stranded oligonucleotide

<400> 16
 aaaagcgcgc tttgtaggat tcgtctcttg aacgaatcct acaaagcgcg c 51

<210> 17
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic luciferase control (LUC) double-stranded oligonucleotide

<400> 17
 tccccgtacg cggaatactt cgattcaaga gatcgaagta ttccgcgtac g 51

<210> 18
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic luciferase control (LUC) double-stranded
 oligonucleotide

<400> 18
 aaaacgtacg cggaatactt cgatctcttg aatcgaagta ttccgcgtac g 51

<210> 19
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR internal control
 glyceraldehyde-3-phosphate dehydrogenase (GAPD, GAPDH, G3PD)
 specific primer

<400> 19
 atggaaatcc catcaccatc t 21

<210> 20
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR internal control
 glyceraldehyde-3-phosphate dehydrogenase (GAPD, GAPDH, G3PD)
 specific primer

<400> 20
 gggttgagcac aggtacttt att 23

<210> 21
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR A7870 specific primer

<400> 21
 gccttcatca tccaaacatt 20

<210> 22
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic semi-quantitative RT-PCR A7870 specific primer

<400> 22
 ggcaaatatg tctgccttgt 20

<210> 23
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic double stranded A7870-specific siRNA
 oligonucleotide Si1-F

<400> 23
 caccgaacga tataaagcca gccttcaaga gaggctggct ttatatcggt c 51

<210> 24
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic double stranded A7870-specific siRNA
 oligonucleotide Si1-R

<400> 24
 aaaagaacga tataaagcca gcctctcttg aaggctggct ttatatcggt c 51

<210> 25
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic A7870 (TOPK) specific target sequence Si1-Target

<400> 25
 gaacgatata aagccagcc 19

<210> 26
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic double stranded A7870-specific siRNA
 oligonucleotide Si3-F

<400> 26
 caccctggat gaatcatacc agattcaaga gatctggtat gattcatcca g 51

<210> 27
 <211> 51
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic double stranded A7870-specific siRNA
 oligonucleotide Si3-R

<400> 27
 aaaactggat gaatcatacc agatctcttg aatctggtat gattcatcca g 51

<210> 28
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic A7870 (TOPK) specific target sequence Si3-Target

 <400> 28
 ctggatgaat cataaccaga 19

 <210> 29
 <211> 51
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic double stranded A7870-specific siRNA
 oligonucleotide Si4-F

 <400> 29
 caccgtgtgg cttgcgtaaa taattcaaga gattatttac gcaagccaca c 51

 <210> 30
 <211> 51
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic double stranded A7870-specific siRNA
 oligonucleotide Si4-R

 <400> 30
 aaaagtgtgg cttgcgtaaa taatctcttg aattatttac gcaagccaca c 51

 <210> 31
 <211> 19
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic A7870 (TOPK) specific target sequence Si4-Target

 <400> 31
 gtgtggcttg cgtaaataa 19

 <210> 32
 <211> 10
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> u nucleotides added to 3' end of antisense strand
 of target sequence

 <220>
 <221> modified_base
 <222> (3)...(10)
 <223> u at positions 3-10 may be present or absent

<400> 32
 uuuuuuuuuuu 10

<210> 33
 <211> 41
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

<400> 33
 gaacgauaua aagccagccc ccggcuggcu uuauaucguu c 41

<210> 34
 <211> 42
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

<400> 34
 gaacgauaua aagccagccu ucgggcuggc uuauaucgu uc 42

<210> 35
 <211> 43
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

<400> 35
 gaacgauaua aagccagccc caccggcugg cuuuauaucg uuc 43

<210> 36
 <211> 45
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

<400> 36
 gaacgauaua aagccagccc cacaccggcu ggcuuuauau cguuc 45

<210> 37
 <211> 47
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

<400> 37
 gaacgauaua aagccagccu ucaagagagg cuggcuuuau aucguuc 47

<210> 38
 <211> 41
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 38
 cuggaugaau cauaccagac ccucugguau gauucaucca g 41

 <210> 39
 <211> 42
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 39
 cuggaugaau cauaccagau ucgucuggua ugauucaucc ag 42

 <210> 40
 <211> 43
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 40
 cuggaugaau cauaccagac caccucuggu augauucauc cag 43

 <210> 41
 <211> 45
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 41
 cuggaugaau cauaccagac cacaccucug guaugauuca uccag 45

 <210> 42
 <211> 47
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 42
 cuggaugaau cauaccagau ucaagagauc ugguaugauu cauccag 47

 <210> 43
 <211> 41
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 43
 guguggcuug cguaaaauaac ccuuauuuac gcaagccaca c 41

 <210> 44
 <211> 42
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 44
 guguggcuug cguaaaauau ucguuauuuu cgcaagccac ac 42

 <210> 45
 <211> 43
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 45
 guguggcuug cguaaaauaac caccuuauuu acgcaagcca cac 43

 <210> 46
 <211> 45
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 46
 guguggcuug cguaaaauaac cacaccuuau uuacgcaagc cacac 45

 <210> 47
 <211> 47
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> exemplary TOPK hairpin siRNA with loop sequence

 <400> 47
 guguggcuug cguaaaauau ucaagagauu auuuacgcaa gccacac 47

 <210> 48
 <211> 1840
 <212> DNA
 <213> Homo sapiens

 <220>
 <223> T-LAK cell-originated protein kinase (TOPK),
 spermatogenesis-related protein kinase (SPK), PDZ
 binding kinase (PBK), Nori-3, FLJ14385, A7870, BRC
 No. 456

<220>
 <221> CDS
 <222> (179)..(1147)
 <223> T-LAK cell-originated protein kinase (TOPK)

<400> 48
 ggagggttcg aattgcaacg gcagctaccg ggcgtatgtg ttggtgctag aggcagctgc 60
 aggggtctcg tggggggccg tggggaccaa ttttgaagag gtacttggcc acgacttatt 120
 ttcacctccg acctttcctt ccaggcgggtg agactctgga ctgagagtgg ctttcacaat 180
 ggaagggtac agtaatttca agacaccaag caaattatca gaaaaaaga aatctgtatt 240
 atgttcaact ccaactataa atatcccggc ctctccgatt atgcagaagc ttggcttttg 300
 tactggggta aatgtgtacc taatgaaaag atctccaaga ggtttgtctc attctccttg 360
 ggctgtaaaa aagattaatc ctatatgtaa tgatcattat cgaagtgtgt atcaaaagag 420
 actaatggat gaagctaaga ttttgaaaag ccttcatcat ccaaacattg ttggttatcg 480
 tgcttttact gaagccagtg atggcagctc gtgtcttgct atggaatatg gaggtgaaaa 540
 gtctctaaat gacttaatat aagaacgata taaagccagc caagatcctt ttccagcagc 600
 cataatttta aaagttgctt tgaatatggc aagagggtta aagtatctgc accaagaaaa 660
 gaaactgctt catggagaca taaagtcttc aaatggtgta attaaaggcg attttgaaac 720
 aattaaatc tgtgatgtag gagtctctct accactggat gaaaatatga ctgtgactga 780
 ccctgaggct tggtacattg gcacagagcc atggaaaccc aaagaagctg tggaggagaa 840
 tgggtgttatt actgacaagg cagacatatt tgcctttggc cttactttgt gggaaatgat 900
 gacttttatcg attccacaca ttaatctttc aaatgatgat gatgatgaag ataaaacttt 960
 tgatgaaagt gattttgatg atgaagcata ctatgcagcc ttgggaacta ggccacctat 1020
 taatatggaa gaactggatg aatcatacca gaaagtaatt gaactcttct ctgtatgcac 1080
 taatgaagac cctaaagatc gtccttctgc tgcacacatt gttgaagctc tggaaacaga 1140
 tgtctagtga tcatctcagc tgaagtgtgg cttgcgtaaa taactgttta ttccaaaata 1200
 ttacatagtg tactatcagt agttattaga ctctaaaatt ggcatatttc aggaccatag 1260
 tttcttggtt acatatggat aactatttct aatatgaaat atgcttataat tggctataag 1320
 cacttggaat tgtactgggt tttctgtaaa gtttttagaaa ctactacat aagtactttg 1380
 atactgctca tgctgactta aaacactagc agtaaaacgc tgtaaactgt accattaaat 1440
 tgaatgccat tacttttatt aatgatcttt cttaaatatt ctatatatta atggatctac 1500
 tgacattagc actttgtaca gtacaaaata aagtctacat ttgtttaaaa cactgaacct 1560
 tttgctgatg tgtttatcaa atgataactg gaagctgagg agaatatgcc tcaaaaagag 1620
 tagctccttg gatacttcag actctgggta cagatgtctg tgatctcttg gatctcctca 1680
 gatcttcttt gggttttgct ttaatttatt aaatgtatct tccatactga gttttaaaatt 1740
 tattaatttg taccttaagc atttcccagc tgtgtaaaaa caataaaact caaataggat 1800
 gataaagaat aaaggacact ttgggtaaaa aaaaaaaaaa 1840

<210> 49
 <211> 322
 <212> PRT
 <213> Homo sapiens

<220>
 <223> T-LAK cell-originated protein kinase (TOPK),
 spermatogenesis-related protein kinase (SPK), PDZ
 binding kinase (PBK), Nori-3, FLJ14385, A7870, BRC
 No. 456

<400> 49
 Met Glu Gly Ile Ser Asn Phe Lys Thr Pro Ser Lys Leu Ser Glu Lys
 1 5 10 15
 Lys Lys Ser Val Leu Cys Ser Thr Pro Thr Ile Asn Ile Pro Ala Ser
 20 25 30
 Pro Ile Met Gln Lys Leu Gly Phe Gly Thr Gly Val Asn Val Tyr Leu
 35 40 45
 Met Lys Arg Ser Pro Arg Gly Leu Ser His Ser Pro Trp Ala Val Lys
 50 55 60
 Lys Ile Asn Pro Ile Cys Asn Asp His Tyr Arg Ser Val Tyr Gln Lys
 65 70 75 80

```

Arg Leu Met Asp Glu Ala Lys Ile Leu Lys Ser Leu His His Pro Asn
      85          90          95
Ile Val Gly Tyr Arg Ala Phe Thr Glu Ala Ser Asp Gly Ser Leu Cys
      100        105        110
Leu Ala Met Glu Tyr Gly Gly Glu Lys Ser Leu Asn Asp Leu Ile Glu
      115        120        125
Glu Arg Tyr Lys Ala Ser Gln Asp Pro Phe Pro Ala Ala Ile Ile Leu
      130        135        140
Lys Val Ala Leu Asn Met Ala Arg Gly Leu Lys Tyr Leu His Gln Glu
      145        150        155        160
Lys Lys Leu Leu His Gly Asp Ile Lys Ser Ser Asn Val Val Ile Lys
      165        170        175
Gly Asp Phe Glu Thr Ile Lys Ile Cys Asp Val Gly Val Ser Leu Pro
      180        185        190
Leu Asp Glu Asn Met Thr Val Thr Asp Pro Glu Ala Cys Tyr Ile Gly
      195        200        205
Thr Glu Pro Trp Lys Pro Lys Glu Ala Val Glu Glu Asn Gly Val Ile
      210        215        220
Thr Asp Lys Ala Asp Ile Phe Ala Phe Gly Leu Thr Leu Trp Glu Met
      225        230        235        240
Met Thr Leu Ser Ile Pro His Ile Asn Leu Ser Asn Asp Asp Asp Asp
      245        250        255
Glu Asp Lys Thr Phe Asp Glu Ser Asp Phe Asp Asp Glu Ala Tyr Tyr
      260        265        270
Ala Ala Leu Gly Thr Arg Pro Pro Ile Asn Met Glu Glu Leu Asp Glu
      275        280        285
Ser Tyr Gln Lys Val Ile Glu Leu Phe Ser Val Cys Thr Asn Glu Asp
      290        295        300
Pro Lys Asp Arg Pro Ser Ala Ala His Ile Val Glu Ala Leu Glu Thr
      305        310        315        320
Asp Val

```

```

<210> 50
<211> 1899
<212> DNA
<213> Homo sapiens

```

```

<220>
<223> T-LAK cell-originated protein kinase (TOPK),
      spermatogenesis-related protein kinase (SPK), PDZ
      binding kinase (PBK), Nori-3, FLJ14385, A7870, BRC
      No. 456

```

```

<220>
<221> CDS
<222> (202)..(1170)
<223> T-LAK cell-originated protein kinase (TOPK)

```

```

<400> 50
agcgcgcgcac tttttgaaag ccaggagggt tcgaattgca acggcagctg ccggggcgat 60
gtgttggtgc tagaggcagc tgcagggtct cgctgggggc cgctcgggac caattttgaa 120
gaggacttg gccacgactt attttcacct cgcacctttc cttccaggcg gtgagactct 180
ggactgagag tggctttcac aatggaaggg atcagtaatt tcaagacacc aagcaaat 240
tcagaaaaaa agaatctgt attatgttca actccaacta taaatatccc ggcctctccg 300
tttatgcaga agcttggtt tggtagtggg gtaaagtgtg acctaataa aagatctcca 360
agaggtttgt ctcatctctc ttgggctgta aaaaagatta atcctatatg taatgatcat 420
tatcgaagtg tgtatcaaaa gagactaatg gatgaagcta agattttgaa aagccttcat 480
catccaaaca ttgttggtta tcgtgctttt actgaagcca atgatggcag tctgtgtctt 540
gctatggaat atggagggtg aaagtctcta aatgacttaa tagaagaacg atataaagcc 600
agccaagatc cttttccagc agccataatt ttaaaagttg ctttgaatat ggcaagaggg 660

```

```

ttaaagtatc tgcaccaaga aaagaaactg cttcatggag acataaagtc ttcaaagtgt 720
gtaattaaag gcgattttga aacaattaaa atctgtgatg taggagtctc tctaccactg 780
gatgaaaata tgactgtgac tgaccctgag gcttggttaca ttggcacaga gccatggaaa 840
cccaaagaag ctgtggagga gaatgggtgtt attactgaca aggcagacat atttgccttt 900
ggccttactt tgtgggaaat gatgacttta tcgattccac acattaatct ttcaaagtgt 960
gatgatgatg aagataaaaac ttttgatgaa agtgattttg atgatgaagc atactatgca 1020
gcgttgggaa ctaggccacc tattaatatg gaagaactgg atgaatcata ccagaaagta 1080
attgaactct tctctgtatg cactaatgaa gaccctaaaag atcgtccttc tgcgtgcacac 1140
attggttgaag ctctggaaac agatgtctag tgatcatctc agctgaagtg tggcttgcgt 1200
aaataactgt ttattccaaa atattttacat agttactatc agtagttatt agactctaaa 1260
attggcatat ttgaggacca tagtttcttg ttaacatatg gataactatt tctaatatga 1320
aatatgctta tattggctat aagcacttgg aattgtactg gggtttctgt aaagttttag 1380
aaactagcta cataagtact ttgatactgc tcatgctgac ttaaaacact agcagtaaaa 1440
cgctgtaaac tgtaacatta aattgaatga ccattacttt tattaatgat ctttcttaaa 1500
tattctatat ttaaatggat ctactgacat tagcactttg tacagtacaa aataaagtct 1560
acatttgttt aaaacactga accttttgct gatgtgttta tcaaatgata actggaagct 1620
gaggagaata tgcctcaaaa agagtagctc cttggatact tcagactctg gttacagatt 1680
gtcttgatct cttggatctc ctcagatctt tgggttttgc tttaatttat taaatgtatt 1740
ttccatactg agtttaaaaat ttattaattt gtaccttaag catttcccag ctgtgtaaaa 1800
acaataaaaac tcaaatagga tgataaagaa taaaggacac tttgggtacc agaaaaaaaa 1860
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1899

```

<210> 51

<211> 322

<212> PRT

<213> Homo sapiens

<220>

<223> T-LAK cell-originated protein kinase (TOPK),
spermatogenesis-related protein kinase (SPK), PDZ
binding kinase (PBK), Nori-3, FLJ14385, A7870, BRC
No. 456

<400> 51

```

Met Glu Gly Ile Ser Asn Phe Lys Thr Pro Ser Lys Leu Ser Glu Lys
 1           5           10          15
Lys Lys Ser Val Leu Cys Ser Thr Pro Thr Ile Asn Ile Pro Ala Ser
          20          25          30
Pro Phe Met Gln Lys Leu Gly Phe Gly Thr Gly Val Asn Val Tyr Leu
          35          40          45
Met Lys Arg Ser Pro Arg Gly Leu Ser His Ser Pro Trp Ala Val Lys
          50          55          60
Lys Ile Asn Pro Ile Cys Asn Asp His Tyr Arg Ser Val Tyr Gln Lys
          65          70          75          80
Arg Leu Met Asp Glu Ala Lys Ile Leu Lys Ser Leu His His Pro Asn
          85          90          95
Ile Val Gly Tyr Arg Ala Phe Thr Glu Ala Asn Asp Gly Ser Leu Cys
          100         105         110
Leu Ala Met Glu Tyr Gly Gly Glu Lys Ser Leu Asn Asp Leu Ile Glu
          115         120         125
Glu Arg Tyr Lys Ala Ser Gln Asp Pro Phe Pro Ala Ala Ile Ile Leu
          130         135         140
Lys Val Ala Leu Asn Met Ala Arg Gly Leu Lys Tyr Leu His Gln Glu
          145         150         155         160
Lys Lys Leu Leu His Gly Asp Ile Lys Ser Ser Asn Val Val Ile Lys
          165         170         175
Gly Asp Phe Glu Thr Ile Lys Ile Cys Asp Val Gly Val Ser Leu Pro
          180         185         190
Leu Asp Glu Asn Met Thr Val Thr Asp Pro Glu Ala Cys Tyr Ile Gly
          195         200         205

```

Thr	Glu	Pro	Trp	Lys	Pro	Lys	Glu	Ala	Val	Glu	Glu	Asn	Gly	Val	Ile
210						215					220				
Thr	Asp	Lys	Ala	Asp	Ile	Phe	Ala	Phe	Gly	Leu	Thr	Leu	Trp	Glu	Met
225					230					235					240
Met	Thr	Leu	Ser	Ile	Pro	His	Ile	Asn	Leu	Ser	Asn	Asp	Asp	Asp	Asp
				245					250					255	
Glu	Asp	Lys	Thr	Phe	Asp	Glu	Ser	Asp	Phe	Asp	Asp	Glu	Ala	Tyr	Tyr
			260					265					270		
Ala	Ala	Leu	Gly	Thr	Arg	Pro	Pro	Ile	Asn	Met	Glu	Glu	Leu	Asp	Glu
		275					280					285			
Ser	Tyr	Gln	Lys	Val	Ile	Glu	Leu	Phe	Ser	Val	Cys	Thr	Asn	Glu	Asp
	290					295					300				
Pro	Lys	Asp	Arg	Pro	Ser	Ala	Ala	His	Ile	Val	Glu	Ala	Leu	Glu	Thr
305					310					315					320
Asp	Val														

<210> 52

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> endoplasmic reticulum retention sequence

<400> 52

Lys Asp Glu Leu

1